



NATIONAL WILDLIFE FEDERATION®

Great Lakes Natural Resource Center
213 West Liberty Street, Suite 200
Ann Arbor MI 48104-1398
734-769-3351
www.nwf.org

Jon Heinrich
Bureau of Air Management
PO Box 7921
Madison, WI 53707

May 5, 2008

Re: Natural Resources Board Order Number AM-32-05 relating to the control of mercury emissions from electrical generating units.

Dear Mr. Heinrich,

On behalf of the National Wildlife Federation (NWF), please accept these comments on the proposed changes to rules addressing mercury emissions from electrical generating units (Natural Resources Board Order Number AM-32-05). We support Wisconsin Department of Natural Resources (DNR) efforts to move forward in adopting rules addressing power plant mercury emissions, in particular in light of delays at the federal level in adopting strong, legally adequate rules by the U.S. Environmental Protection Agency (EPA). However, we believe Wisconsin can follow the lead of other states and move more aggressively to reduce mercury emissions from coal-fired electrical generating units.

Mercury contamination of the environment remains an ongoing concern; as of this spring, fish consumption advisories were in place in all 50 states, and contamination remains widespread in the Great Lakes region, including in Wisconsin. As noted in the Madison Declaration on Mercury Pollution (resulting from the 8th International Conference on Mercury as a Global Pollutant in August 2006), human exposure to methylmercury “at levels exceeding those considered clearly safe and without risk of adverse effect has been observed across geographic, social, economic, and cultural boundaries.”¹ In addition, the Panel on Health Risks and Toxicological Effects of Methylmercury, a panel (on which I served) organized as part of that meeting noted, “To preserve human health, all efforts need to be made to reduce and eliminate sources of exposure, through regulation and dissemination of information.”²

There is thus a clear need to continue efforts to reduce mercury releases in the region, building on both earlier and more recent efforts that have included voluntary pollution prevention measures, mercury-containing product phaseouts, and regulatory measures on emissions sources. The combination of removal of mercury from a number of products and strong federal rules

¹ The Madison Declaration on Mercury Pollution, *Ambio*, 36(1):62-65.

² Mergler, D., Anderson, H.A., Chan, L.H.M., Mahaffey, K.R., Murray, M., Sakamoto, M., Stern, A.H., 2007. Methylmercury Exposure and Health Effects in Humans: A Worldwide Concern, *Ambio*, 33(1):3-11.

addressing incineration sources (in particular medical and municipal waste incinerators) has resulted in significant declines in emissions from those sectors over the past decade. Meanwhile, the importance of coal-fired power plants as major mercury sources has only grown, and the need for major reductions from this sector has been made clearer.

We appreciate the decision by the Wisconsin DNR to propose mercury rules more stringent than requirements included in the federal Clean Air Mercury Rule (CAMR) (since vacated by the U.S. Court of Appeals for the D.C. Circuit); however, as noted above, we believe the rules can still be more stringent than proposed, and have the following recommendations.

The Reduction Target in the Rules Can Be More Stringent

For large utility units, the rules call for either 90% mercury emission from mercury content in fuel combusted or an output emissions rate of 0.008 lbs per gigawatt-hour (GWh). There is no stipulation in the rule requiring the more stringent of these options, so presumably there is little likelihood of the more stringent option being chosen in a given case.

Concerning output-based emissions, data compiled by U.S. EPA for 2004 indicated that Wisconsin coal-fired power plants had output-based mercury emissions ranging from 0.021 to 0.096 lbs/GWh;³ control to a 0.008 lbs/GWh standard would mean individual plant emission reduction percentages ranging from 61.9% to 91.7%, with an average plant reduction of 79.5%. The overall reduction in state emissions (with each plant reducing to 0.008 lbs/GWh) would be 84.7%.

Plants in Wisconsin currently control (incidentally) from 10 to 12% of mercury content in coal.⁴ Thus, if utilities were to pursue the coal-based 90% control target, they would need to install technology sufficient to reduce mercury in flue gas approximately 80% - i.e., an 80% reduction in emissions compared to 90% that has been a typical reduction goal in both certain previously adopted federal emissions standards for mercury emitting sectors, as well as introduced legislation for power plants.

The state budget for Wisconsin in the original Clean Air Mercury Rule would have required a reduction in mercury emissions to 0.351 tons starting in 2018, or a 69% reduction from a 1999 baseline.⁵ If utilities generally choose the 90% reduction from mercury in coal target, the actual percentage reduction in mercury releases from the sector in the state will be only marginally greater than the original CAMR budget. And pursuing the output-based target would still fall short of a 90% reduction goal that a number of other states have adopted, and that is technically feasible. (We have the same concerns with other existing or proposed state rules with similar

³ U.S. EPA, eGRID2006 Version 2.1 Plant File, data available from <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>

⁴ Wisconsin Department of Natural Resources (DNR), Mercury Emissions from Coal-fired Power Plants: Public Health and Welfare Finding Pursuant to Section 285.27(2)(b), Wisconsin Statutes, March 2008.

⁵ 70 FR 28606, Table 1.

targets as Wisconsin.) We believe a target of 90% reduction in emissions is attainable (either specified through a reduction percentage or a lower output-based limit).

The Time Frame Should Be Shorter

Technology for mercury control at coal-fired power plants is clearly well established, even as additional research and development continues by the private and public sectors. Effective mercury control via activated carbon injection in flue gases at plants most typical of those in Wisconsin (i.e., units burning subbituminous coals and with cold-side electrostatic precipitators (ESPs) for particulate control) is clear, with field tests routinely showing over 90% mercury control at low to moderate carbon injection rates.⁶ Other work has shown promising results from multipollutant control technologies, including at the WE Energies Presque Isle plant (as noted in the preliminary findings document,⁷ and a presentation at the recent U.S. Department of Energy 2007 Mercury Control Technology Conference.⁸) Results have also shown that both mercury control alone and multipollutant control can currently be achieved at relatively low costs. For example, recent estimates indicate the highest levelized costs for mercury control on five units burning subbituminous coals using halogenated sorbents (where the captured fly ash is assumed not available for resale) would be 2.35 mills/kWh.⁹ Based on utility revenue data, NWF earlier estimated that costs on this order would amount to an increase in residential, commercial and industrial utility bills of only approximately 1-3 percent.¹⁰

In addition, the federal policy landscape has changed, in particular with the recent court decision to vacate CAMR.¹¹ It is now more likely that U.S. EPA will promulgate a federal rule more stringent than their cap and trade rule, with an effective date potentially as late as 2014,¹² and even then, still earlier than proposed compliance dates in the Wisconsin rule, and much earlier in the case of plants for which a multipollutant reduction option were to be pursued. In addition,

⁶ In particular for halogenated sorbents. See for example Jones, A.P., DOE/NETL's Mercury Control Technology R&D Program Review, 2007 Mercury Control Technology Conference, Dec. 12, 2007, Pittsburgh, PA, http://www.netl.doe.gov/publications/proceedings/07/mercury/presentations/Jones_Pres.pdf

⁷ Wisconsin DNR, 2008, *Op. Cit.*

⁸ Derenne, S., TOXECON™ Clean Coal Demonstration for Mercury and Multi-Pollutant Control, 2007 Mercury Control Technology Conference, Dec. 13, 2007, Pittsburgh, PA, http://www.netl.doe.gov/publications/proceedings/07/mercury/presentations/Derenne_Pres.pdf

⁹ Jones, 2007, *Op. Cit.*

¹⁰ National Wildlife Federation, Getting the Job Done: Affordable Mercury Control at Coal-Burning Power Plants, October 2004, <http://www.nwf.org/nwfwebadmin/binaryVault/GettingTheJobDoneReport.pdf>

¹¹ In addition, given the changing policy landscape, we believe the DNR should ensure that supporting documents for the mercury rules are as up to date as possible, at time of rule finalization. For example, the preliminary findings document offers a useful summary of the issues around the mercury rules, including similar rules proposed or finalized in the region. But recent developments should be incorporated into a revised document, including, for example, the decision by U.S. EPA to appeal the D.C. Circuit Court decisions, as well as transmission of the latest version of the Michigan rules to the State Office Of Administrative Hearings and Rules.

¹² Meltz, R., McCarthy, J.E., The D.C. Circuit Rejects EPA's Mercury Rules: *New Jersey v. EPA*, CRS Report for Congress, RS22817, Updated February 28, 2008.

there are at least five multipollutant bills that have been introduced in Congress, with compliance deadlines ranging from 2011- 2015.¹³

Given the various drivers (in particular state rules, consent decrees, and construction permits for new plants), air pollution control vendors are already reporting bookings for mercury control equipment for over 80 coal-fired units across the country.¹⁴ Thus, it seems clear that both the utility industry and pollution control firms are already moving forward into an era requiring significant mercury reductions from coal-fired power plants. Requiring Wisconsin utilities to meet a strong mercury reduction target by 2015 or even earlier, even with a multipollutant approach, would appear to be both technically and economically feasible.

Finally, an additional concern with coal-fired power plants is the significant greenhouse gas emissions from the sector. The scientific community is increasingly recognizing the threat to the climate (and consequently, much of the biosphere) of unchecked anthropogenic greenhouse gas emissions.¹⁵ Even with relatively significant additional reductions in mercury releases, climate change could in some cases exacerbate problems with mercury and other pollutants, in addition to causing other direct and indirect impacts. Wisconsin, like other states, should consider its electricity generation profile in the context of a carbon-constrained world. In addition to a greater emphasis on conservation, efficiency, and renewable energy sources, the state should consider multipollutant approaches more broadly (i.e., to include carbon capture and sequestration), and ensure that any new coal plants approved are designed to be able to more readily capture carbon (e.g., through integrated gasification combined cycle technology).

In summary, we appreciate the efforts in Wisconsin to strengthen mercury rules for coal-fired power plants, but believe the rules should be made more stringent, consistent with changing federal policy developments, other state actions, industry trends, and the need to adequately protect public health and the environment.

Sincerely,

Michael Murray, Ph.D.
Staff Scientist

¹³ *Ibid.*

¹⁴ Institute of Clean Air Companies, Commercial Electric Utility Mercury Control Technology Bookings (updated April 21, 2008) http://www.icac.com/files/public/Commercial_Hg_Equipment_042108.pdf

¹⁵ IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp., <http://www.ipcc.ch/ipccreports/ar4-syr.htm>